SUMMARY

Wednesday, August 31, 2005

Homes and Restaurants Workgroup Meeting

Held: August 17, 2005
Meeting Location/Address:
NJDEP Headquarters Building, 401 E. State St., Trenton, NJ
Meeting called by: Ray Papalski
Co-Facilitator: Laura Scatena

Attendees:

State Team Members:

1. Ray Papalski, Workgroup Leader, New Jersey Department of Environmental Protection (NJDEP), Division of Air Quality Planning (DAQ), Bureau of Air Quality Planning (BAQP)
2. Laura Scatena, Co-Facilitator, NJDEP DAQ BAQP
3. Frank Matula, NJDEP, DAQ, Bureau of Technical Services
4. Jim Scarvalli, NJDEP, Division of Compliance and Enforcement (DCE), Minor Source Compliance Investigation
5. Tom Pitcherello, New Jersey Department of Community Affairs (NJDCA)

Participants:

1. Mohammad Ali, New Jersey Department of Agriculture (DOA)
2. Adeline Arnold, Aberdeen Township Environmental and Shade Tree Advisory Board (by phone)
3. Ana Baptista, Association of New Jersey Environmental Commissions (ANJEC)
4. Laurence Bernson, R&D Council of New Jersey (by phone)
5. Eric DeGesero, Fuel Merchants Association of New Jersey
6. Kenneth Fradkin, United States Environmental Protection Agency (USEPA) Region 2 (by phone)
7. Ronald Jackson, New Jersey Board of Public Utilities (BPU), Office of Clean Energy
8. Kim Johnson, New Jersey BPU, Office of Clean Energy
9. Anne Leimbach, Mid-Atlantic Hearth, Patio & Barbecue Association (HPBA) (by phone)
10. Jeff Lynch, White Castle (by phone)
11. Jeff Miller, White Castle (by phone)
12. Vince Patram, Engelhard Corporation
13. Kety Rosario, NJDEP DCE
14. Arnold Schmidt, Union County Health Department
15. Tim Smith, USEPA, Office of Air Quality Planning and Standards (OAQPS) (by phone)
16. Paul Truchan, USEPA (by phone)
17. Sandra Valle, New York Academy of Sciences (by phone)
18. Ed Wengryn, New Jersey Farm Bureau
19. John Whitaker, White Castle

If you participated in this meeting and are not listed, please contact us at airworkgrouphr@dep.state.nj.us.

Materials:

1. Name tag *(Please bring to the next meeting)*
2. Agenda
3. Last meeting summary (7-27-05)
4. Subchapter 5: Prohibition of Air Pollution (includes odor provisions)

5. "Final Staff Report: Proposed New Rule 74.25, Restaurant Cooking Operations Proposed Revisions to Rule 23, Exemptions from Permit." Ventura County Air Pollution Control District
6. South Coast Air Quality Management District, Rule 1138, Control of Emissions from Restaurant Control Emissions
7. "Assessment of Emissions from a Chain-Driven Charbroiler (NEICO Model 9025, Golden West Equipment, Inc.) Using a Catalytic Control Device (Model 7-193)," Engelhard (pdf)
8. Zero Energy Homes Article
9. New Jersey's Clean Energy Program
10. New Jersey's Renewable Energy Program
11. Engelhard CHARCat™ 900, Charbroiler Catalysts Fact Sheet (hardcopy)
12. "Catalytic Method for Controlling Restaurants," Engelhard (report hardcopy)

Introduction/Announcements

- Role call (23 participants, see list above)
- Comments and revisions on the July 27, 2005 meeting can be sent to airworkgrouphr@dep.state.nj.us.

Overview

1. Review of the purpose of the workgroup effort:
   - Contribution to New Jersey's future efforts to control air pollution
   - Recommendations for reducing ozone and fine particulate matter
   - White papers are encouraged from those who wish to present an individual perspective
   - NJDEP to review recommendations
     - If strategies are utilized, they will go through the normal public and rule development process
- New Jersey needs a series of control measures to reduce current levels of air pollution. There appears to be no one strategy that alone will solve New Jersey's air pollution problems.
- Homes and Restaurants Idea Table and Report will be sent to the group for comment and review
- A rough final draft due by September 30

2. Background of the workgroup effort
- Meetings:
  - Introductory meeting at the War Memorial June 29, 2005
  - Indoor Wood Burning addressed at the July 13, 2005 meeting
  - Outdoor Wood Burning addressed at the July 27, 2005 meeting
  - **Restaurants and Other Sources to be addressed today**

Discussion: Restaurants and Other Sources

Topic 1: Restaurant Controls:

- **Existing California Standards**
- **Existing Controls on Restaurants (i.e.; odor type controls)**
- **New California Standards Expected?**
- **USEPA's Pilot Program for Restaurant Controls**

Discussion:

- California Standards: Existing
  - The discussion on restaurant controls began by introducing California's efforts on controlling air emissions from restaurants. A brief background focused on their controls of chain-driven charbroiler processes.
  - Initially, there was no response from the workgroup participants on their opinions on California standards and if they were appropriate to implement in New Jersey.
- New California Standards Expected?
  - There were questions about New Jersey's position on adopting California regulations. California regulations include exemptions for the amounts of cooking for which no controls are required. There is no definitative decision that New Jersey will or will not adopt these regulations. There was a concern regarding the science of the studies conducted for Southern California and that implementation in California was a result of overregulation in that state. The 1997 report released from the South Coast Air Quality Management District (SCAQMD) was used to support the regulations and discussed the cost-effectiveness of controls for different cooking methods. It was suggested that new data be collected

and investigated for new controls as the report is dated, in addition to looking at regional trends of cooking methods. To date, no other states have formally implemented restaurant controls outside California.

- Background on charbroiling
  - Everyone in the group was not familiar with the applicability of the regulations to the specific restaurant process known as charbroiling and a brief background of the method was explained. The method is comprised of a chain-driven device that carries the burgers on a belt over a direct flame. It was noted that Burger King uses this type of methodology and the existing regulations in California only apply to those establishments that use charbroiling.
  - White Castle does not use an open flame but steams their burgers, which produces very little product emissions compared to chain-driven operations. Since the only air emission factors developed for restaurant emissions are for charbroiling, White Castle representatives would investigate how different cooking methods are quantified and if any information on emissions from processes other than charbroilers exist (see Action Items).

- Restaurant Emissions in New Jersey
  - In order to understand the current situation in New Jersey and how to address restaurant emissions, a brief summary of the current data available was discussed.
  - New Jersey based restaurant emissions on the calculation method used in Southern California and made adjustments using the population of New Jersey.
  - Recommendation: Try to obtain better numbers for the emission inventory (see Action Items)
    - The New Jersey Restaurant Association (NJRA) was mentioned as possibly being able to provide better numbers (see Action Items).
    - If provided with a list of restaurants, Engelhard Corporation might be able to produce data that show better quantification of the emissions in New Jersey (see Action Items).
    - Other sources of better information that the NJDEP could reference and/or investigate included:
      - County health inspections: restaurants report to the Department of Health and Human Services
      - Calculations based on taxation data

- Existing Controls on Restaurants (e.g.; odor type controls placed voluntarily or involuntarily by the owner)
  - Discussion on the existing controls in New Jersey and those that are available in general encompassed New Jersey's applicable regulations, applying existing controls and new technology available to restaurants in those establishments that do not voluntarily do so, and requiring standards for maintenance and installation of control equipment after installation. Details are listed below.
  - Restaurants are not the only sources of cooking smoke. Other sources include industrial processes and caterers. The industrial processes and food processing plants are covered under another workgroup since this workgroup is focused on restaurants.
  - Applicable New Jersey permit requirements and options were briefly outlined:
    - Subchapter 5: County health departments verify complaints of odors or smoke and require that the restaurants do "something" (but do not specify a control) if Subchapter 5 complaints are recorded against an establishment.
    - Subchapter 8: Applies to companies with large smokers, process boilers. Research and Development (R&D) facilities must adhere to these requirements if the volume produced meets the limits specified (e.g., artificial smoke flavors, tomato sauce). The trigger is the size of equipment or the amount of material processed (e.g.; greater than 50 pounds an hour – see local controls below).

  - Maintenance of Control Equipment
  - As part of the discussion on existing controls, a significant factor in restaurant emissions is the maintenance required. The responsibility of maintaining the controls on the equipment can be the responsibility of the corporation or the franchise owner. For example, White Castle has its own maintenance staff and Burger King also takes responsibility for maintenance.
  - Controls are very expensive to change but companies may also receive tax benefits for adding controls. However, costs were discussed in more detail and the initial cost can be around $1000-1500/unit and the cost of maintenance thereafter is low.
  - The actual emissions from uncontrolled equipment are significantly high. The food does not produce the pollutants but the source is when the flame hits the burger and the fats emit volatile organic compounds (VOCs). The emissions are based on the quantity of lbs. Meat/restaurant/day. The

calculations could vary because of unequal cooking of the meat. Other factors that will affect the actual emissions include the length of time the restaurant is in business.

- Specific maintenance practices were discussed and included odor controls (for example, filtration systems - a wash system that circulates every night in addition to conducting a preliminary inspection and then rechecking every 3 months), controls to catch fat and grease, such as the Smog Hog™, and catalytic retrofits (flame-driven processes vs. lower operating temperatures result in different mixtures of VOCs and require different temperatures).
- Extra controls may also use additional electricity and it was suggested that future controls be investigated further as they might increase the amount of energy utilized and offset the environmental benefits (e.g., electrostatic precipitators).
- Based on documents and studies reviewed by some of the participants, there are different types of systems that will not necessarily use more electricity but some exist that will demand more electricity. There also can be natural gas savings by installing control equipment (see Action Items). There are other systems (e.g., LC System) that are low cost, low maintenance. More information about these systems was requested (see Action Items).

- Local Controls
- New Jersey regulations were discussed and Subchapter 16 may cover grease traps but does not cover (restaurant) smoke. Subchapter 8 is not likely to effect an average restaurant because the permit applicability levels for process rates or size are too high:
  - (1) Commercial fuel burning equipment that has a maximum rated heat input of 1,000,000 BTU per hour or greater to the burning chamber or (2) equipment in which the combined weight of all raw materials used exceeds 50 pounds in any one hour). *This is not a complete list of requirements for N.J.A.C 7:27-8. For complete details on the applicability of this subchapter, please visit* http://www.state.nj.us/dep/aqm/Sub8v2004-04-05.htm.
- Other permit issues were discussed surrounding possible applicability of Subchapters 6 and 16 to restaurants, which address RACT requirements. There was a feeling for the need for clarification on how restaurants could fit into these subchapters. Due to the charge of the subgroup, the primary focus is on area/non-major point sources under which restaurants are categorized.
- Subchapter 11 - Incinerators requires that certain levels must be met and it was suggested that restaurants could apply some of the requirements and strategies from this subchapter to restaurant controls (see Conclusion for recommendations).
- Certain systems are installed because of neighbor complaints. For example, Holton Pure Air System is required by the local zoning board in NY. The cost is comparable to the Smog Hog and the increase of electricity used was minimal.
- Other controls mentioned included a HEPA filter (low cost, simple option).
- Other situations that might require odor control include high population density and close proximity to the restaurants (e.g., NYC). The combination of these factors is significant when applying control equipment is considered. The number of controls added to existing equipment based on odor complaints versus those added due to zoning requirements was unknown but estimated to be largely due to odor complaints rather than zoning requirements in New Jersey.

- USEPA's Pilot Program for Restaurant Controls
  - The USEPA's pilot program will focus on 2 non-attainment areas: NYC and Philadelphia and will quantify benefits from restaurant equipment controls.

Conclusion: The following strategies/recommendations for further investigation were:

1. Further investigate regulations and controls applied in California for applicability in New Jersey taking into consideration the regional differences between New Jersey and Southern California while investigating the scientific studies used to support the standards; the economical impacts; social impacts; differences in cooking methods; and the proximity of restaurants to highly populated residential areas.
2. Further investigate New Jersey restaurant emissions to try to improve quantification methods for more accurate air emissions from restaurants based on other types of cooking methods (i.e., taxation data, restaurant data sent to the Department of Health and Human Services)
3. Adding controls for existing restaurant equipment should be investigated further taking into account the same factors as in #1, in addition to electricity demands and the potential for environmental benefit offsets.
4. Further investigate N.J.A.C. 7:27 - Subchapter 11 – Incinerators for applicability to restaurant controls.

Action Items/Person(s) responsible/Deadline:

1. Investigate how different cooking methods are quantified and if any information on emissions from processes other than charbroilers exist – White Castle Corp.
2. Types of restaurants and a list of restaurants in New Jersey – Laura Scatena to contact NJRA
3. A different set of emissions data for restaurants in New Jersey based on the list provided by NJRA – Vince Patram
4. Natural gas savings from installing control equipment – Vince Patram
5. Information on low cost, low maintenance systems, such as the LC Systems – Jeff Miller

Notes:

(1) Subsequent to this meeting, White Castle provided a fact sheet produced by the NJRA. The data will be included in the workgroup's idea table and report.

Topic 2: Low Sulfur Home Heating Oil

Discussion:

- There is an existing proposal by the Northeast States for Coordinated Air Use Management (NESCAUM) regional organization to reduce the sulfur content of fuel oil to 500 ppm for the northeast states. The Memorandum of Understanding (MOU) was discussed with industry at a meeting that took place in Boston, MA. A report is expected to be released soon that covers the costs and supply/distribution issues, among others, but the date for release is yet to be determined.
- The Fuel Merchants Association (distributors) was represented at the meeting and expanded upon the general position of distributors and refineries at the meeting. A concern that Pennsylvania would not be included in the MOU was expressed but since the NESCAUM states are also a part of the Mid-Atlantic/Northeast Visibility Union (MANE-VU), Pennsylvania could be included if the MOU is brought to the MANE-VU organization of states. Distributors support a NESCAUM-type approach but felt that the implementation date of 2007/08 is too aggressive because the general lead time to meet a new standard is around 6 years. The current demands and standards were reviewed with distribution issues explained.
- From the refineries' position, the $PM_{2.5}$ annual emissions do not reflect a spike during peak periods of oil usage, thus inferring that there is no problem and that the proposal is not needed. In addition, other efforts to reduce sulfur in fuels are already in place: in mobile sources, sulfur will be reduced beginning in September 2006 and will steadily decrease until 2010, and will include marine sources.

Conclusion: The group concluded the following strategy for New Jersey:

1. Work with NESCAUM to develop an MOU for a regional sulfur in fuel oil standard that addresses capacity, supply, distribution, and timing concerns of the refineries.

Action Items/Person(s) responsible/Deadline: None

Topic 3: Renewable Energy and Energy Efficiency Programs Rebates for Homeowners and Businesses

Discussion:

- The New Jersey Board of Public Utilities explained the applicable programs for homeowners and businesses in two parts: Renewable Energy and Efficiency. For comprehensive details, visit their website (see above meeting materials #9 and #10).
- BPU currently has $120-130 million in the program for rebates (1/3 for renewable energy, 2/3 for energy efficiency)
- Overall goals of both renewable energy and energy efficiency rebate programs are:
  1. Cover costs through rebates until it is cost-efficient and readily available in the market.
  2. Programs cover costs until standards are required by regulations: example, Energy Star (standards being upgraded in 2006 and DCA will need to adopt, which will eliminate the need for rebates)

- Energy Efficiency Programs Overview (see website for all programs and details)
  - Home Programs
  - Traditionally, programs are run through the utilities and may be run through contractors in the future. Rebates exist for upgrading systems for the most efficient equipment. Currently, there are rebates for: new A/C, room A/C, and heating systems. Geothermal systems are not rebated anymore as it is cost-effective to install and operate these. Different programs exist for people with low incomes.
  - A web tool exists to teach homeowners about saving money and reducing energy demand: Home

Analysis
  - Programs for Restaurants
    - Studies have shown that simple maintenance and installation of efficient equipment will save energy and money. Requirements are only for certain systems and problems arise because equipment and systems are not inspected and/or not installed properly.
    - Offer of a rebate results in low cost or no cost to the establishment (i.e., the cost of replacing a refrigerator will be returned within 6 months).
- Renewable Energy Programs Overview (see website for all programs and details)
  - Long-term Goal: 6% of energy consumption should be renewable energy by 2012
  - Short-term Goal: by Dec. 2008 -- 300 MW covered by Class 1 energy sources, 90 MW covered by Class 2 energy sources (solar)
  - Programs are divided into 2 groups:
    - Class 1: Wind, biomass
    - Class 2: Solar
  - Clean Energy: Solar or any Class 1 renewable (most popular)
  - 65-70% installation costs covered
  - Tiered program
  - Works during hot/peak energy demand days
  - Effectively reduces the cost of electricity
  - Net metering: Concept of solar energy producing excess electricity that is then supplied to the electric grid, and in effect, the meter runs backwards in a home and a rebate is received from the utility.
  - Solar Renewable Energy Certificates (SREC): Each time a solar electric system generates 1000kWh (1MWh) of electricity, an SREC is issued which can then be sold or traded separately from the power. They can be sold on the market for $200-250.
  - Other programs:
    - Renewable Energy Project Grants and Financing
    - Renewable Energy Business Venture Assistance
- Other Renewable Energy and Energy Efficiency programs:
  - BP Solar/Home Depot Partnership
    - Cost of solar system is expensive and is not practical without the rebate
    - BP Solar Online Calculator: For homeowners to estimate the cost of a system in their area is available on the web at http://www.bp.com/solarsavings.do?categoryId=3050524 (or use link above).
  - Home Energy Performance
    - Implements requirements of Energy Star
    - Developed in NY state for existing homes
    - Completed by trained technicians
    - 2 million existing homes in NJ (90% of all homes): The effort should be focused in this area.
  - Home Tune-Up
    - A cost-effective program for homeowners entailing inspections of existing homes
  - Solar Hot Water Heating
    - Available where natural gas is not
- Evolving technologies:
  - Geothermal: in-floor radiant heat. Effective geothermal energy depends on surrounding environment (heat comes from the ground and moderates fluids to about 55 deg. F). Stockton College is an example of a working location suitable for geothermal energy. The cost depends on the specific situation.
  - Passive solar homes/no utility homes: NJBPU has not pushed these programs.
  - DOA Solar Program: Analyses for solar energy have been conducted on farms. The results have been positive (public needs to see the realized benefits before buying into program), pilots included education and trial/error (all needed for a successful program) (suggestion)

- The following suggestions were discussed in detail:

1. Extend rebates to get more of the public involved combined with a general public education and outreach effort on renewable energy and energy efficiency.
   - Rebates are based on kw installed and result in many benefits. There was debate about how many people actually know about the program: Many applications may be pending for rebate programs but 2 million homes exist in New Jersey. NJBPU has education and outreach about the benefits of their programs (e.g., Clean Energy Conference on September 26).

2. Mandate geothermal or solar energy for new homes and businesses and require equipment upgrades for existing homes and businesses
   - Makes economic sense to mandate
3. Require clean energy systems for homes over a certain size
   - Currently, NJBPU caps rebates at a certain size (defined by square footage).
   - Similar existing efforts are in place for clean energy developments in Camden and Atlantic City.
4. Mandate that builders provide homeowners with clean energy options at the time of construction and/or require that a certain percentage of homes are predesigned with geothermal/clean energy options ready for purchase and are available to low-income families
   - Issue: Many homes are built before they are purchased, i.e., model homes and developments
   - Issue: Geothermal energy is not the best solution for every situation; all aspects need to be investigated before possible implementation.
5. Instead of mandates, extend existing NJBPU programs to incorporate more benefits for builders.
   - Note: National Tour of Solar Homes, New Jersey Tour of Homes, October 1, 2005
6. Mandate that clean energy systems be required for new commercial and industrial buildings and include maintenance and upgrade specifications for existing buildings.
   - 90% of cost is fuels and maintenance – if efficient systems are installed, significant savings are realized
     - Example: Johnson & Johnson (people will follow by example)
   - NJBPU currently has a program for faith institutions to help run the buildings efficiently.
   - NJDCA has codes for the building designs to comply with the current energy code. There is a mechanism in the New Jersey building codes for energy efficient installation. In 2006, there will be advancing requirements that NJDCA will adopt into their existing codes.
   - Leadership in Energy and Environmental Design (LEED) voluntary program requirements are not referenced in the codes.
7. Mandate a program that meets certain standards that are widely accepted by creating minimum standards for all appliances
   - Some appliances do have minimum standards in New Jersey; manufacturers cannot make appliances that do not meet certain standards and there are tax credits available to meet new standards.

Conclusion: New Jersey has the best, if not one of the best, renewable energy programs in the country. Through the discussion of strategies for renewable energy and energy efficiency, it was clear that more could be done in New Jersey to reduce energy demands by utilizing the NJBPU programs, in conjunction with the NJDEP, to support a stronger effort in the state.

Action Items/Person(s) responsible/Deadline:

1. Provide more detailed suggestions on how NJDEP and NJBPU can work together on strategies - NJBPU

Topic 4: Using Restaurant Grease as an Alternative Fuel (Fry-O-Diesel)

Discussion:

- Fry-O-Diesel: A company in Philadelphia that will convert used restaurant grease, known as "yellow grease," and make B20 and B100 blends for an alternative diesel fuel. Their goal is "...to establish a production facility capable of producing three million gallons per year of B100 which, when blended, will produce 15 million gallons per year of B20. For optimum performance in Pennsylvania's cold weather climate, fuel will be distributed as a B20 blend (20% biodiesel, 80% petro-diesel). Fry-O-Diesel will be produced from waste vegetable oil (yellow grease and trap grease) collected from restaurants, food service companies and renderers." http://www.fryodiesel.com/EnergyHarvest.htm
- Doing this will serve to:
  - Alleviate the water and waste issues caused by restaurant waste
  - Provide an alternative energy resource
- Problems discussed with the strategy:
  - Transportation/distribution
  - Market exists for the end-product but the processing aspect is unclear
  - Fits more into biodiesel/renewable fuels since the fuel is not used in homes or restaurants
  - Benefits are realized in other areas besides immediate restaurants benefits such as reducing waste and saving costs of disposal (cheap or no costs)

Conclusion: The group decided that the issue should be discussed in another workgroup that is reviewing alternative fuels.

Action Items/Person(s) responsible/Deadline: None

Wrap-up

1. A request for additional suggestions/ideas/comments was announced to the group.
    - Additional ideas and suggestions should be emailed to airworkgrouphr@dep.state.nj.us
2. Next steps:
    - Share idea table with the workgroup participants once suggestions from this meeting are incorporated
    - Next meeting: Wrap-Up and Review
    - A rough draft report: by Sept. 14

- All information will be posted on the Homes and Restaurants Workgroup website at http://www.state.nj.us/dep/airworkgroups/home_restaurant_workgroup.html

The Next HR Workgroup Meeting is Wednesday, September 14, 10 AM at NJDEP in Trenton. Room location and conference call logistics are provided on the HR website (see calendar links) and in the meeting agenda.